Permit No. AS0000019

AUTHORIZATION TO DISCHARGE UNDER THE

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with the provision of the Federal Water Pollution Control Act, as amended (33 U.S.C. 1251 et seq.; the "Act"),

Star-Kist Samoa, Inc.
P.O. Box 368
Pago Pago, Tutuila
American Samoa 96799

is authorized to discharge tuna processing wastewater from the cannery located at Pago Pago, American Samoa from outfall Discharge Serial No. 001:

Latitude:	14 deg.	17 min.	01 sec.	S
Longitude:	170 deg.	40 min.	02 sec.	W

to receiving waters named: Pago Pago Harbor in accordance with the effluent limitations, monitoring requirements, and other conditions set forth in Sections A through G hereof.

This permit shall become effective on 27 OCT 1992.

This permit and the authorization to discharge shall expire at midnight, 26 OCT 1997.

Signed this 24 day of SEPTEMBER.

For the Regional Administrator

Catherine Kuhlman for

Harry Seraydarian
Director
Water Management Division

A. EFFLUENT LIMITS AND MONITORING REQUIREMENTS

1. During the period beginning with the effective date of this permit and lasting through the expiration date of this permit, the permittee is authorized to discharge from Outfall 001.

The effluent shall be sampled prior to its commingling with effluent from the other cannery.

Such discharges shall be limited and monitored by the permittee as specified below:[1]

EFFLUENT CHARACTERISTICS	DISCHARGE LIMITATIONS		MONITORING REQUIREMENTS	
	30-DAY AVG.	DAILY MAX.	MEASUREMENT FREQUENCY	SAMPLE TYPE
FLOW (MGD)	--	2.9	CONTINUOUS	RECORDER
BIOCHEMICAL OXYGEN DEMAND (5-DAY)	(5)	(5)	TWICE/MONTH	COMPOSITE
SUSPENDED SOLIDS (lbs/day)	2653	6673	TWICE/WEEK	COMPOSITE
OIL AND GREASE (lbs/day)	675	1688	TWICE/WEEK	GRAB[2]
TOTAL PHOSPHORUS (lbs/day)	192	309	(3)	COMPOSITE
TOTAL NITROGEN (lbs/day)	1200	2100	(3)	COMPOSITE
ACUTE TOXICITY	--	(4)	ONCE/6 MONTHS	COMPOSITE
TOTAL AMMONIA (mg/l)	--	133	ONCE/WEEK	COMPOSITE
TEMPERATURE (°F)	90	95	CONTINUOUS	CONTINUOUS
TOTAL CADMIUM (mg/l)	(5)	(5)	ONCE/6 MONTHS	COMPOSITE
TOTAL CHROMIUM (mg/l)	"	"	"	"
TOTAL LEAD (mg/l)	"	"	"	"
TOTAL MERCURY (mg/l)	"	"	"	"
TOTAL ZINC (mg/l)	"	"	"	"
pH	--	(6)	CONTINUOUS	CONTINUOUS

ATTACHMENT 1

NOTES:

(1) Where discharge monitoring data is reported as "below detection limit", both the detection limit obtained and the analytical method used shall be included on the monthly discharge monitoring report (DMR).

(2) Each oil and grease sample shall consist of four individual grab samples ("sub-samples") which shall be taken at even intervals during each production period in which samples are taken. Each sub-sample shall be separately analyzed and the mean value of the four sub-samples, shall be reported for daily maximum and monthly average.

(3) Permittee is required to sample twice/week on production days. Should the permittee wish to monitor the effluent on a non-production day(s), the permittee must monitor for the six consecutive days following the non-production day on which the first sample was taken. The average of all samples taken during that month will determine compliance with the "monthly average".

Should the canneries consistently comply with their TN and TP limitations and should the monitoring data show that the discharge is not impacting the water quality in the harbor or causing water quality violations for one year, the permit may be modified to incorporate a "weighted average" method of measuring compliance with the limitations. The numerical limitations themselves shall not be made any less stringent.

(4) See Section D "Toxicity" for monitoring requirements.

(5) No limit set at this time. Monitoring and reporting only.

(6) The pH is limited between 6.5 and 8.6 standard units. The total time during which the pH values are outside the required range of pH values shall not exceed 7 hours and 26 minutes in any calendar month; and no individual excursions from the range of pH values shall exceed 60 minutes.

B. DISCHARGE SPECIFICATIONS

Samples taken at monitoring stations 8, 8a, 14, 15, 16, 17 and 18 in the receiving water shall not reveal* any of the following in accordance with American Samoa Water Quality Standards:

1. Chlorophyll a levels in excess of 1.0 ug/l;

2. Light penetration depth less than 65 feet;

3. Objectionable color, odor, or taste, either alone or in

combinations, or in the biota;

4. Visible floating materials, grease, oil, scum, foam, and other floating material; and,

5. Materials that will produce visible turbidity or settle to form objectionable deposits.

Samples taken at monitoring stations 8, 8a, 15, 16, 17, 18 in the receiving water (those stations outside the zone of initial dilution (ZID)) shall not reveal* any of the following in accordance with American Samoa Water Quality Standards:

1. Dissolved oxygen (DO) concentration less than 5.0 mg/L; or 70% saturation;

2. Turbidity in excess of 0.75 nephelometric turbidity units; and,

3. Toxicity to aquatic life.

Samples taken at monitoring stations 15, 16, 17, and 18 in the receiving water (those stations outside the zone of mixing (ZOM)) shall not reveal* any of the following in accordance with American Samoa Water Quality Standards:

1. A temperature more than 1.5 degrees Fahrenheit from conditions that would occur naturally;

2. A level of total nitrogen in excess of 200 ug/l; and,

3. A level of total phosphorous in excess of 30 ug/l.

*Should any samples of ambient water reveal exceedances of the standards specified above and should ASEPA and/or USEPA determine that the canneries' discharge is the cause of the exceedance, the canneries may be required to undertake various actions including ceasing discharge and/or additional studies or monitoring to determine the cause of the exceedance. Violations of water quality standards shall be determined in accordance with American Samoa Water Quality Standards.

C. PROTECTED AND PROHIBITED USES

1. The protected uses of Pago Pago Harbor are as follows:

   a. Recreational and subsistence fishing;
   b. Boat-launching ramps and designated mooring areas;
   c. Subsistence food gathering, e.g. shellfish harvesting;
   d. Aesthetic enjoyment;
   e. Whole and limited body-contact recreation, e.g. swimming, snorkeling, surfing and scuba diving.
   f. Support and propagation of marine life;
   g. Industrial water supply;

h. Mari-culture development;
i. Normal harbor activities; e.g. ship movements, docking, loading and unloading, marine railways and floating drydocks; and
j. Scientific investigation.

2. Prohibited uses include but are not limited to:

a. Dumping or discharge of solid waste;
b. Animal pens over or adjacent to any shoreline;
c. Dredging and filling activities, except when permitted by the American Samoa Environmental Quality Commission (ASEQC) in accordance with the Environmental Quality Act (Title 24, American Samoa Code); AND
d. Radioactive waste discharges; and
e. Discharge of oil sludge, oil refuse, fuel oil, or bilge water, or any other waste water from any vessel or unpermitted shoreside facility.

The permittee shall not engage in any of the above prohibited uses nor in any uses that would conflict with the protected uses of the harbor.

D. TOXICITY

1. Proposed Effluent Biomonitoring

Beginning 90 days after the effective date of this permit, the permittee shall conduct, or have a contract laboratory conduct, semi-annual 96-hr. static renewal acute bioassays on composite effluent samples according to the methods described in Methods for Measuring the Acute Toxicity of Effluents to Freshwater and Marine Organisms (Fourth Edition EPA/600/4-90/027) using the white shrimp, Penaeus vannamei postlarvae. Tests shall be conducted using a $\leq$ 0.5 dilution series (ie., 100%, 25%, 12.5%, 6.25%, 3.13%, 1.56%).

Use probit analysis to calculate the LC50 and 95% confidence intervals. Use Analysis of Variance and Dunnett's multiple comparison test to calculate the No Observed Effect Concentrations (NOECs). These results will be reported on the permittee's Discharge Monitoring Reports (DMR's).

2. Priority Pollutant Scan

The permittee shall have a priority pollutant scan of the effluent conducted concurrent with the bioassays required above. The results of shall be submitted to the USEPA and ASEPA within 4 months of the effective date of the permit and yearly thereafter.

3. Toxicity Reopener

Should any of the monitoring indicate that the discharge causes, has reasonable potential to cause, or contributes to an excursion above a water quality criteria, the permit may be reopened for the imposition of water quality-based limits and/or whole effluent toxicity limits. Also, this permit may be modified, in accordance with the requirements set forth at 40 CFR 122.44 and 124.14, to include appropriate conditions or limits to address demonstrated effluent toxicity, or to implement any EPA-approved new state water quality standards or testing methods applicable to effluent toxicity.

E. RECEIVING WATER QUALITY MONITORING PROGRAM

To determine compliance with water quality standards, the receiving water quality monitoring program must document water quality at the outfall, at areas near the zone of initial dilution (ZID) and zone of mixing (ZOM) boundaries, at areas beyond these zones where discharge impacts might reasonably be expected, and at reference/control areas. The permittee, cooperatively with Samoa Packing Co., shall perform or cause to be performed, water quality monitoring at stations along the shoreline and offshore at regular frequencies as detailed below.

Should any monitoring or studies reveal, in the judgement of either ASEPA or EPA, that the water quality, coral reef, or overall biological health of the harbor is being impaired as a result of the new outfall discharge, either agency may at any time prohibit further discharge and/or require additional monitoring.

All water quality samples should be collected and processed according to the protocols found in EPA's guidance document entitled, Quality Assurance and Quality Control (QA/QC) for 301(h) Monitoring Programs: Guidance on Field and Laboratory Methods (EPA, 1987a). Monitoring reports shall be submitted to EPA on a quarterly basis.

Monitoring stations shall be designated and located as shown (also see Figures 1 and 2):

Offshore Station	Vicinity	Location	Coordinates Latitude	Longitude
5	Transition Zone		170° 39' .72W	14° 17' .88S
6	Outer harbor	Central	170° 40' .20W	14° 17' .52S
7	Outer harbor	East, South	170° 39' .93W	14° 17' .37S
8	Outer harbor	East	170° 40' .07W	14° 17' .17S
8a	Middle harbor	East	170° 40' .13W	14° 16' .88S
9	Middle harbor	East	170° 40' .18W	14° 16' .66S
9a	Middle harbor	East	170° 40' .57W	14° 16' .58S
10	Middle harbor	West	170° 40' .75W	14° 16' .87S
11	Inner harbor	Center, East	170° 40' .90W	14° 16' .58S
11a	Inner harbor	Center, East	170° 41' .13W	14° 16' .62S
12	Inner harbor	Center	170° 41' .33W	14° 16' .60S
13	Inner harbor	Center, West	170° 41' .71W	14° 16' .50S
14	Middle harbor	Diffuser	170° 40' .03W	14° 16' .58S
15	Middle harbor	ZOM Edge, North	170° 40' .12W	14° 16' .77S
16	Middle harbor	ZOM Edge, West	170° 40' .17W	14° 16' .56S
17	Middle harbor	ZOM Edge, East	170° 39' .91W	14° 16' .90S
18	Outer harbor	ZOM Edge, South	170° 40' .08W	14° 17' .10S

It is recommended that the stations be located using the sextant angle resection positioning method or a positioning system which affords an equivalent degree of accuracy and precision. Other means may be used if, in the judgment of ASEPA and EPA Region 9, they are of sufficient accuracy and precision to allow reoccupation of the stations within plus or minus six (6) meters.

The following shall constitute the Water Quality Monitoring Program as shown:

Parameter	Units	Sample Stations	Sample Type	Frequency
Temperature	°F	all	grab	monthly
pH		"	"	"
Dissolved Oxygen	mg/l	"	"	"
Suspended Solids	mg/l	"	"	"
Light Penetration	ft	"	"	"
Turbidity	NTU	"	"	"
Salinity	ppt	"	"	"
Chlorophyll a	ug/l	"	"	"
Total Nitrogen	ug/l	"	"	"
Total Phosphorus	ug/l	"	"	"
Total Ammonia	ug/l	"	"	"

Measurements should be taken at three depths for each location: 1 meter above the bottom, 1 meter below the surface, and at mid-depth.

F. DYE OR TRACER STUDIES

Within one week of the effective date of this permit, the permittee shall submit a plan to the ASEPA and EPA to perform dye and/or tracer studies in order to better understand the fate of the effluent plume. The permittee shall perform these studies twice for one year (once during each of the two primary seasons of the year) and submit its findings 30 days after conducting each study. The date of the first study must be approved by USEPA and ASEPA and shall occur at the earliest possible time a distinct oceanographic season is in effect and no later than four months of the effective date of the permit.

G. SEDIMENT MONITORING

Sediment monitoring is conducted to determine the character of the sediments in relation to long-term high nutrient discharge by the permittee in the harbor and if harbor recovery will be affected by resuspension of the nutrients.

The permittee, cooperatively with Samoa Packing Co., shall undertake a yearly sediment monitoring program in Pago Pago Harbor in order to assess the concentration of nutrient and organic components, the distribution of stored nutrients, the size of the nutrient reservoir and the rate of accumulation of nutrients. Seven sites shall be located within Pago Pago Harbor and analyzed for total nitrogen, total phosphorus, percent organics, percent solids, bulk density, oxidation-reduction potential and sulfides. Three sites shall be located in inner Pago Pago Harbor and four sites shall be located in the outer harbor. These sites and monitoring plan shall be submitted within three months of the effective date of the permit for approval by ASEPA and EPA. Thereafter, these sites shall be approved annually by the anniversary date of the effective date of the permit. A report of the sediment monitoring program findings shall be submitted to the ASEPA and EPA 90 days after completion of sampling.

After the first two studies have been performed and the results have been assessed the permit may be reopened for the inclusion of a more frequent or less frequent monitoring schedule.

H. EUTROPHICATION STUDY

The permittee cooperatively with Samoa Packing Co., shall complete a study in which a direct assessment of the algal-nutrient relationships in Pago Pago Harbor is obtained. This study shall include construction of algal-nutrient response curves for a range of nitrogen-to-phosphorus ratios, nitrogen

and phosphorus levels, salinity levels, and phytoplankton communities. This study is not intended to be exhaustive in nature, but to provide information on phytoplankton dynamics in Pago Pago Harbor. The study may be partially completed utilizing data from past and future water quality and sediment monitoring programs and/or may be conducted in conjuunction with these programs as possible.

A proposed study design shall be submitted to ASEPA and EPA for approval within six months of the effective date of the permit. The study shall be completed and report submitted to ASEPA and EPA within one year of the effective date of the permit.

I. CORAL REEF SURVEY

Within six months of the effective date of this NPDES permit, the permittee, in cooperation with Samoa Packing Co., shall submit a field study design for approval by ASEPA and EPA Region 9 to assess the potential impacts of the discharge on the nearby coral reef. The study shall include coral reef transects which shall conform to locations found on Figure 4 in the USE ATTAINABLILITY AND SITE-SPECIFIC CRITERIA ANALYSES; PAGO PAGO HARBOR, AMERICAN SAMOA, FINAL REPORT (CH2M Hill, March 15, 1991). The intent of this annual survey is to detect significant differences, if any, from the database information found in the above-cited document. Videos shall be submitted to both the USEPA and ASEPA. Guidance for designing such surveys is provided in the "Design of 301(h) Monitoring Programs for Municipal Wastewater Discharges to Marine Waters," November 1982, EPA #430/0-82-010 (pages 70-71). In addition, the discharger should consult "Ecological Impacts of Sewage Discharges on Coral Reef Communities," September 1983, EPA #430/9-83-010, for further information. The study shall be conducted within one year of the effective date of this permit and every two years thereafter.

J. VERIFICATION OF MODELING PREDICTIONS

Within three months after both dye studies have been completed, the permittee, cooperatively with Samoa Packing Co., shall submit a study plan to USEPA and ASEPA that will discuss how the permittees will utilize the results from the monitoring data and from the dye studies to verify the models used in the determination of the mixing zones (the 30-second dilution zone, the ZID, and the ZOM). Also, the plan shall discuss how the permittee will examine the effects of BOD_5 in the effluent on Dissolved Oxygen (DO) in the receiving water, utilizing an appropriate model and one year's worth of

ambient data. Upon approval of the study plan by USEPA and ASEPA, the permittee shall initiate the studies indicated and submit reports on a yearly basis. Reports shall summarize renewed predictions of dilution rates and the size, location, and movement of the plume based on the calibrated models.

K. WASTEWATER TREATMENT SYSTEM EVALUATION

The permittee shall retain an independent consultant(s) to conduct a complete diagnostic evaluation of the wastewater treatment system. The purpose of the evaluation is to review current plant operations and equipment and to identify possible modifications in order to decrease pollutant loads, specifically of nitrogen and phosphorus, to the harbor.

The evaluation shall identify all the components of the wastewater treatment system. Nitrogen, phosphorus, total suspended solids, oil and grease loadings from each waste stream of the Dissolved Air Flotation (DAF) influent (thaw-water, spray-cooling, plant-washdown) shall be determined. Methods for reducing the amount of wastewater and the pollutant loadings of the components of the DAF influent shall be examined.

The DAF equipment shall be reviewed to determine its effectiveness. The report should examine the working order of the equipment and the existing system controls. The report shall compare the design parameters of the DAF system with the average and maximum operating values for air-to-solids ratio (lb air:lb solids), solids loading ($lb/ft_2/hr$), and hydraulic loading (gpm/ft^2).

Current chemical treatment shall be analyzed to determine effective dosages. Jar and pilot DAF chemical coagulating testing shall be performed using at least three coagulants. Reduction in nitrogen and phosphorous, and total suspended solids shall be reported for each chemical tested and compared to current treatment.

In conclusion, the report shall list in order of importance all recommended improvements to the system, and estimate the cost of each improvement.

This study shall be performed and a report submitted to the ASEPA, and the EPA within one year of the effective date of this permit and again by the expiration date of this permit. The permittee shall submit for approval by ASEPA and EPA, within sixty days of completing the report, a schedule for implementing the recommended improvements. Should the permittee view some of the improvements economically infeasible or technically impossible, the report should

substantiate those views.

If such a study has been performed during the two years preceding the effective date of this permit, the permittee is not required to have the first study performed. The permittee must, however submit an implementation schedule within sixty days of the effective date of this permit. One year from the effective date of this permit, and annually thereafter, a report shall be submitted documenting the progress made in implementing these recommendations.

L. POLLUTION PREVENTION PROGRAM

1. Within six months of the effective date of this permit, the permittee shall develop and implement a Pollution Prevention Program. The purpose of the program is to evaluate and implement methods of reducing or eliminating pollutants listed under section A of this permit from the outfall, stormwater drain(s), plant-site runoff, sludge disposal and fishing vessels. A component of this plan will be a water conservation program.

2. The permittee shall review all facility components or systems (including storage areas; in-plant transfer, process and handling areas; loading and unloading operations; and sludge and waste disposal areas) where these pollutants are generated, stored or handled to evaluate methods for reducing the release of these pollutants to the harbor. In performing such an evaluation, the permittee shall consider ways of preventing fish scraps, oil and grease, etc., from entering the wastewater streams and shall consider typical industry practices such as employee training, inspections and records, preventive maintenance, and good housekeeping. In addition, the permittee may consider structural measures (such as secondary containment devices) where appropriate.

3. The permittee shall retain an independent consultant(s) to determine the source of the high levels of metals (Cadmium, Chromium, Lead, Mercury, and Zinc) in the cannery's effluent, and shall examine methods to reduce the current levels. Such an analysis shall be submitted to the ASEPA and USEPA for approval within six months of the effective date of this permit.

4. The Pollution Prevention Program shall also evaluate ways of preventing fishing vessels from discharging engine oil into the harbor. Such a plan shall explore options such as accepting used oil for burning in the cannery's boilers or for recycling, issuing a multi-lingual

statement to each fishing vessel outlining the regulations against illegal dumping, and establishing a company policy that would prohibit the canneries from purchasing tuna from any vessel found responsible for discharging oil.

5. The Pollution Prevention Program shall be documented in narrative form and shall include any necessary pilot plans, drawings or maps. Other documents already prepared for the facility such as a Safety Manual or a Spill Prevention, Control and Countermeasure (SPCC) plan may be used as part of the program and may be incorporated by reference. The Pollution Prevention plan shall be submitted to ASEPA and EPA within six months of the effective date of this permit and a copy shall be maintained at the facility and annual reports submitted documenting program progress.

M. DEFINITIONS

1. "Ambient conditions" means the existing conditions in the surrounding waters not influenced by the discharger's effluent.

2. "Bypass" means the intentional diversion of waste streams from any portion of a treatment facility whose operation is necessary to maintain compliance with the terms and conditions of this permit.

3. "Whole-effluent toxicity" is the aggregate toxic effect of an effluent measured directly with a "toxicity test".

4. "Composite sample" means, for flow rate measurements, the arithmetic mean of no fewer than eight individual measurements taken at equal intervals for 24 hours or for the duration of the discharge, whichever is shorter.

   "Composite sample" means, for other than flow rate measurement,

   a. A combination of at least eight individual portions obtained at equal time intervals for 24 hours, or the duration of the discharge, whichever is shorter. The volume of each individual portion shall be directly proportional to the discharge flow rate at the time of sampling.

   OR

   b. A combination of at least eight individual portions of equal volume obtained over a 24-hour period. The time interval will vary such that the volume of wastewater discharged between samplings remains constant.

   The compositing period shall equal the specified sampling period, or 24 hours, if no period is specified.

5. "Daily discharge" means:

   a. For flow rate measurement, the average flow rate measured during a calendar day or during any 24-hour period reasonably representative of the calendar day for purposes of sampling.

   b. For pollutant measurements, the concentration or mass emission rate measured during a calendar day or during any 24-hour period reasonably representative of the calendar day for purposes of sampling.

6. "Daily maximum" limit means the maximum acceptable "daily discharge". For pollutant measurements, unless otherwise specified, the results to be compared to the "daily maximum" limit are based on "composite samples."

7. "Duly authorized representative" is one whose:

   a. Authorization is made in writing by a principal executive officer or ranking elected official;

   b. Authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.); and

   c. Written authorization is submitted to the ASEPA and EPA. If an authorization becomes no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements must be submitted to ASEPA and EPA prior to or together with any reports, information, or other applications to be signed by an authorized representative.

8. "Grab sample" is defined as any individual sample collected in a short period of time not exceeding 15 minutes. "Grab samples" shall be collected during normal peak loading conditions for the parameter of interest, which may or may not be during hydraulic peaks. It is used primarily in determining compliance with "daily maximum" limits.

9. "Hazardous substance" means any substance designated under 40 CFR 116 pursuant to Section 311 of the Clean Water Act.

10. "Heavy metals" are, for the purposes of this permit, arsenic, cadmium, chromium, copper, lead, mercury, nickel, silver, and zinc.

11. "Indirect discharger" means a non-domestic discharger introducing pollutants into a publicly owned treatment and disposal system.

12. "Initial dilution" is the process which results in the rapid and irreversible turbulent mixing of wastewater with ocean water around the point of discharge.

    For a submerged buoyant discharge, characteristics of most municipal wastes that are released from the submarine outfalls, the momentum of the discharge and its initial buoyancy act together to produce turbulent mixing. Initial dilution in this case is completed when the diluting wastewater ceases to rise in the water column and first begins to spread horizontally.

    Numerically, initial dilution is expressed as the ratio of the volume of discharged effluent plus ambient water entrained during the process of initial dilution to the volume of discharged effluent.

13. "Mass emission rate" is obtained from the following calculations for any calendar day:

$$\text{Mass emission rate (lb/day)} = 8.345/N \sum_{i=1}^{N} Qi\ Ci$$

$$\text{Mass emission rate (kg/day)} = 3.785/N \sum_{i=1}^{N} Qi\ Ci$$

    in which 'N' is the number of samples analyzed in any calendar day. 'Qi' and 'Ci' are the flow rate (MGD) and the concentration (mg/L), respectively, which are associated with each of the 'N' grab samples which may be taken in any calendar day. If a composite sample is taken, 'Ci' is the concentration measured in the composite sample and 'Qi' is the average flow rate occurring during the period over which samples are composited.

    The daily concentration of all constituents shall be determined from the flow-weighted average of the same constituents in the combined waste stream as follows:

$$\text{Daily concentration} = 1/Qt \sum_{i=1}^{N} Qi\ Ci$$

    in which 'N' is the number of component waste streams. 'Qi' and 'Ci' are the flow rate (MGD) and the constituent concentration (mg/L), respectively, which are associated with each of the 'N' waste streams. 'Qt' is the total flow rate of the combined waste streams.

14. "Monthly average" is the arithmetic mean of daily con-

centrations, or of daily "mass emission rates", over the specified monthly period:

$$\text{Average} = 1/N \sum_{i=1}^{N} Xi$$

in which 'N' is the number of days samples were analyzed during the period and 'Xi' is either the constituent concentration (mg/L) or mass emission rate (kg/day or lb/day) for each sampled day.

15. "100-year frequency flood" means a flood of unusually large magnitude and which is characterized by its infrequent occurrence.

16. "Open coastal waters" means marine waters bounded by 100 fathom (183 m; 600 ft) depth contour and the shoreline excluding bays named in section 24.0206(c)(2)-(4) of the American Samoa water quality standards.

17. "Overflow" means the intentional or unintentional diversion of flow from the collection and transport systems, including the pumping facilities.

18. "Pesticides" are, for purposes of this permit, those six constituents referred to in 40 CFR 125.58(m) (demeton, guthion, malathion, mirex, methoxychlor, and parathion).

19. "Pollutant-free wastewater" means infiltration and inflow, cooling waters, and condensates which are essentially free of pollutants.

20. "Priority pollutants" are those constituents referred to in 40 CFR 401.15 and listed in the EPA NPDES Application Form 2C, pp. V-3 through V-9.

21. "Severe property damage" means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a "bypass" or "overflow." It does not mean economic loss by delays in production.

22. "Sludge" means the solid, semi-liquid suspension of solids, residues, screenings, grit, scum and precipitates separated from, or created in wastewater by the unit processes of a treatment system. It also includes, but is not limited to, all supernatant, filtrate, centrate, decantate, and thickener overflow/underflow in the solids handling parts of the wastewater treatment system.

23. "Toxic pollutant" means any pollutant listed as toxic under Section 307(a)(1) of the Clean Water Act or under 40 CFR 122, Appendix D. Violation of the maximum daily discharge limitations are subject to the 24-hour reporting requirement (section P.13.f).

24. "Toxicity test" is the means to determine the toxicity of a chemical or an effluent using living organisms. A toxicity test measures the degree of response of an exposed test organism to a specific chemical or effluent.

25. "Toxic unit chronic" is the reciprocal of the effluent dilution that causes no unacceptable effect on the test organisms by the end of the chronic exposure period.

26. "Upset" means any exceptional incident in which there is unintentional and temporary noncompliance with effluent limitations in the permit because of factors beyond the reasonable control of the discharger. It does not include noncompliance caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, careless or improper operation, or those problems the discharger should have foreseen.

27. "Waste", "waste discharge", "discharge of waste", and "discharge" are used interchangeably in this permit. The requirements of this permit are applicable to the entire volume of water, and the material therein, which is disposed of to marine waters.

28. "Weekly average" is the arithmetic mean of daily concentrations, or of daily mass emission rates, over the specified weekly period:

$$\text{Average} = 1/N \sum_{i=1}^{N} Xi$$

in which 'N' is the number of days samples were analyzed during the period and 'Xi' is either the constituent concentration (mg/L) or "mass emission rate" (kg/day or lb/day) for each sampled day.

29. "Zone of initial dilution" (ZID) means the region of initial mixing surrounding or adjacent to the end of the outfall pipe or diffuser ports, providing that the ZID may not be larger than allowed by mixing zone restrictions in applicable water quality standards [40 CFR 125.58(w)]. For purposes of designating monitoring stations, the region within a horizontal distance equal to a specified water depth (usually depth of outfall or

average depth of diffuser) from any point of the diffuser or end of the outfall and the water column above and below that region, including the underlying seabed.

30. "Zone of mixing" (ZOM) means limited areas around outfalls and other facilities approved by ASEQC with the concurrence of EPA to allow for the initial dilution of waste discharges [American Samoa Water Quality Standards].

N. QUALITY ASSURANCE/QUALITY CONTROL

All waste material sampling procedures, analytical protocols, and quality assurance/quality control procedures shall be performed in accordance with guidelines specified by EPA. The following references shall be used by the permittee where appropriate:

1. EPA, 40 CFR 136, Guidelines Establishing Test Procedures for the Analysis of Pollutants Under the Clean Water Act;

2. Tetra Tech, Inc. 1985. Summary of the U.S. EPA-approved methods and other guidance for 301(h) monitoring variables. Final program document prepared for the Marine Operations Division, Office of Marine and Estuarine Protection, U.S. Environmental Protection Agency. EPA Contract No. 68-01-693. Tetra Tech, Inc., Bellevue, WA; and

3. Tetra Tech, Inc. 1986. Quality assurance and quality control guidance for 301(h) monitoring programs. Final program document prepared for the Marine Operations Division, Office of Marine and Estuarine Protection, U.S. Environmental Protection Agency. EPA Contract No. 68-01-3968. Tetra Tech, Inc., Bellevue, WA.

O. REPORTING

Monitoring results obtained during the previous 3 months shall be summarized for each month and submitted quarterly on forms to be supplied by EPA, to the extent that the information reported may be entered on the forms. The results of all monitoring required by this permit shall be sumitted in such a format as to allow direct comparison with the limitations and requirements of this permit. Monitoring reports shall be postmarked no later than the 28th day of the month following the completed reporting period. The first report is due 4 months after the effective date of this permit. Signed copies of these and all other reports required herein shall be submitted to the EPA Regional Administrator

and the Government of American Samoa at the following addresses:

Regional Administrator
Environmental Protection Agency
Region 9, Attn: Office of Pacific Island and Native American Programs (E-4)
75 Hawthorne Street
San Francisco, CA 94105

Director
American Samoa Environmental Protection Agency
Office of the Governor
Pago Pago, American Samoa 96799

P. EPA REGION IX STANDARD CONDITIONS

See attachment.

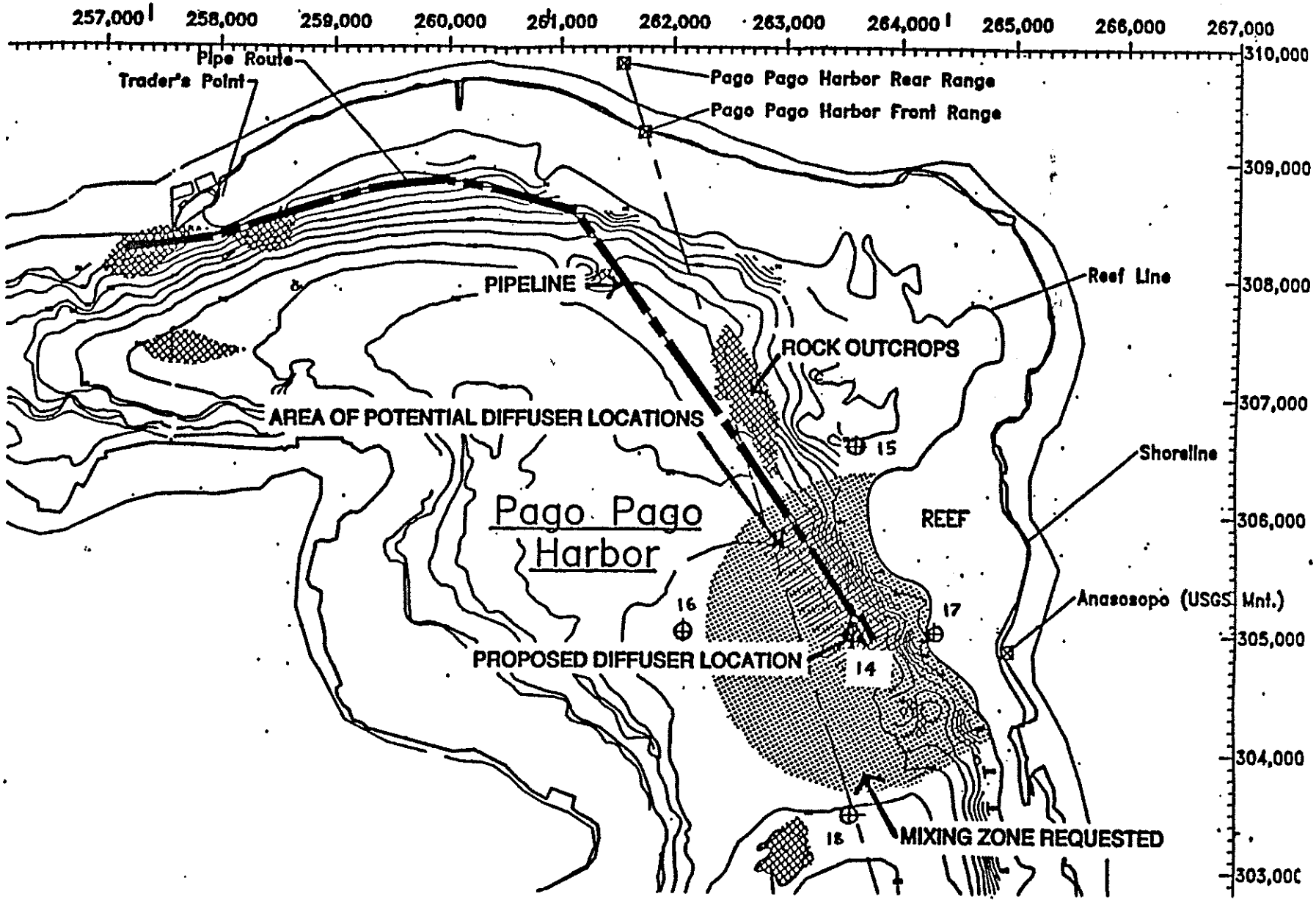
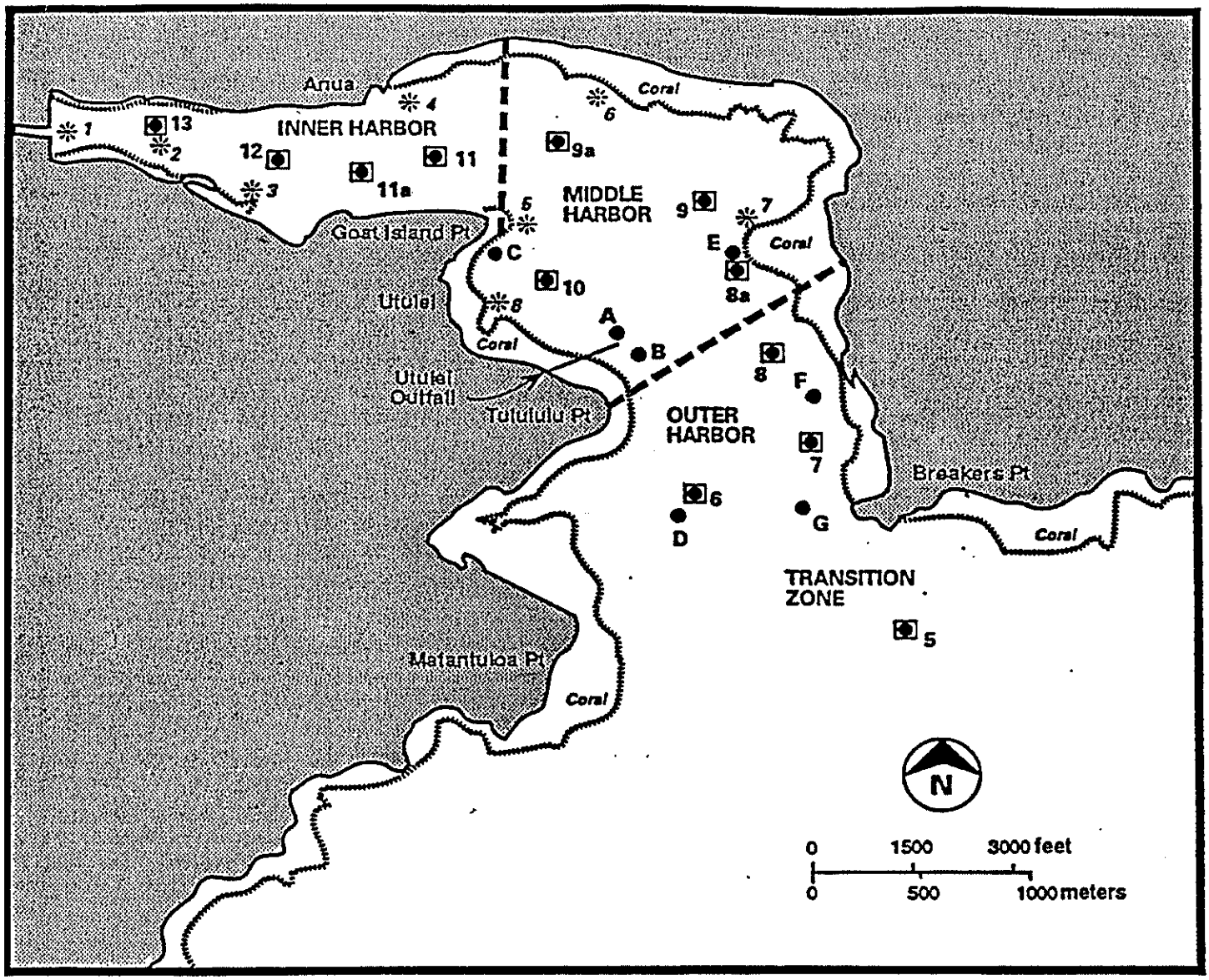


FIGURE 1. NEW MONITORING STATIONS IN PAGO PAGO HARBOR (14-18)



LEGEND

- ASG Sampling Station
- Utulei WWTP Station
- CH2M HILL Field Measurement Station (1/19/91)

FIGURE 2. LOCATION OF WATER QUALITY STATIONS IN PAGO PAGO HARBOR

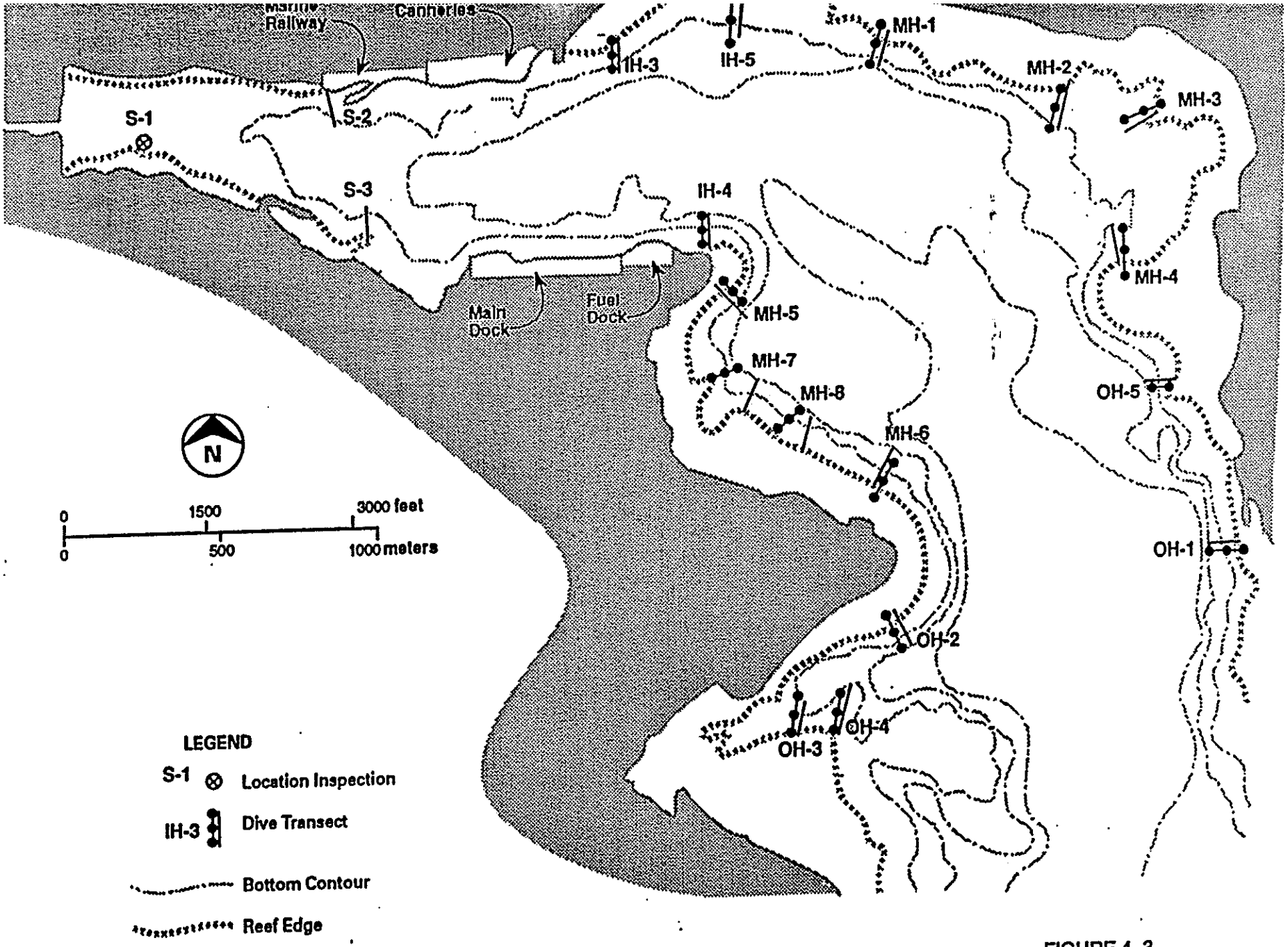


FIGURE 4-3
Coral Reef Transects from 1991 "Use Attainability Analysis", CH2M